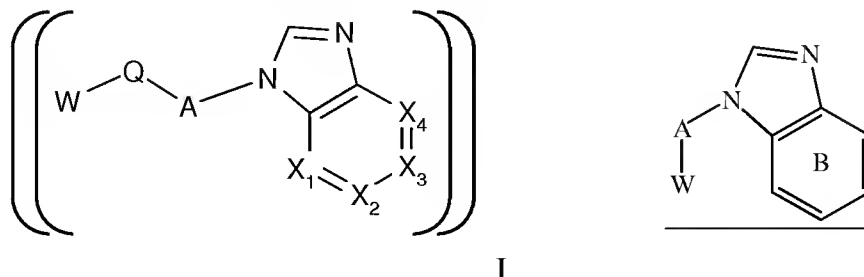


**CLAIM AMENDMENTS**

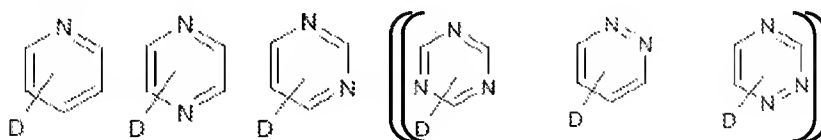
1. (currently amended): A compound of the general formula I



or pharmaceutically acceptable prodrugs, salts, hydrates, solvates, crystal forms or diastereomers thereof, wherein:

~~X<sub>1</sub>, X<sub>2</sub>, X<sub>3</sub>, X<sub>4</sub> are each carbon where one carbon of ring B is substituted with Z and the rest of the carbons are independently substituted with Y; or one of X<sub>1</sub>, X<sub>2</sub>, X<sub>3</sub>, X<sub>4</sub> is N, and the others are carbon where one carbon is substituted with Z and the rest independently with Y;~~

A is a ring selected from:



where D is selected from H, C<sub>1-4</sub> alkyl, halogen, amino;

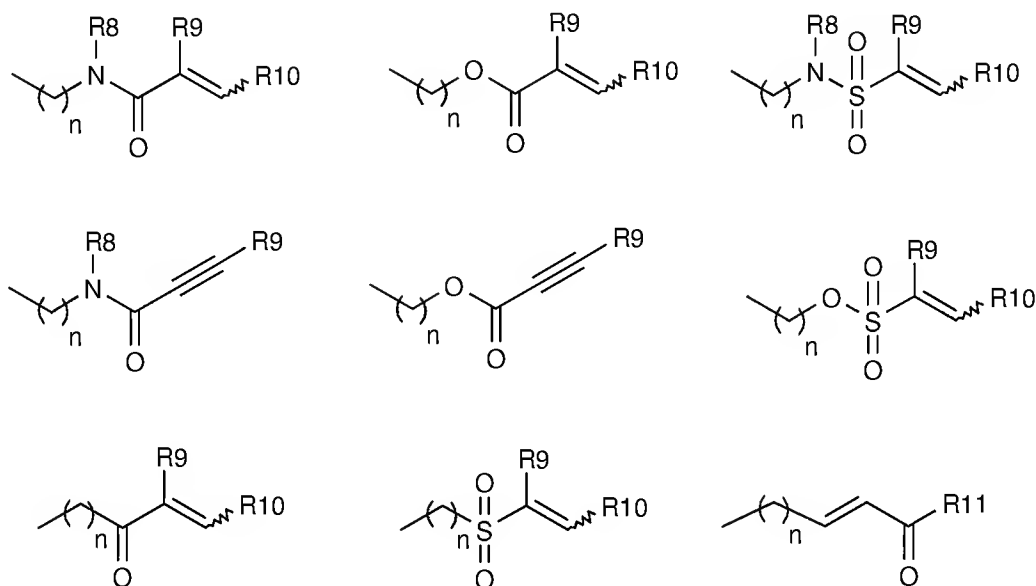
~~Q is a bond, halogen, C<sub>1-4</sub> alkyl, O, S, SO, SO<sub>2</sub>, CO, CS;~~

W is:

- (i) ~~NR<sup>1</sup>R<sup>2</sup> where R<sup>1</sup> and R<sup>2</sup>~~ NR<sup>1</sup>R<sup>2</sup> where R<sup>1</sup> and R<sup>2</sup> are independently H, C<sub>1-4</sub> alkyl, C<sub>1-4</sub> alkylCF<sub>3</sub>, aryl, hetaryl, C<sub>1-4</sub> alkylaryl, C<sub>1-4</sub> alkylhetaryl, C<sub>3-8</sub> cycloalkyl, C<sub>2-6</sub> alkenyl, cyclohetalkyl, C<sub>1-4</sub> alkylcycloalkyl, C<sub>1-4</sub> alkyl cyclohetalkyl, or ~~R<sup>1</sup> and R<sup>2</sup>~~ R<sup>1</sup> and R<sup>2</sup> are joined to form an optionally substituted 3-8 membered ring optionally containing an atom selected from O, S, ~~NR<sup>3</sup>; and R<sup>3</sup>~~ NR<sup>3</sup>; and R<sup>3</sup>; and R<sup>3</sup> is selected from H, C<sub>1-4</sub> alkyl, aryl, hetaryl, C<sub>1-4</sub> alkyl aryl, C<sub>1-4</sub> alkyl hetaryl, ~~COR<sup>4</sup> where R<sup>4</sup>~~ COR<sup>4</sup> where R<sup>4</sup> where R<sup>4</sup> is selected from H, C<sub>1-4</sub> alkyl, aryl, hetaryl; or
- (ii) H, C<sub>1-4</sub> alkyl, aryl, hetaryl, C<sub>3-8</sub> cycloalkyl, cyclohetalkyl, C<sub>1-4</sub> alkylaryl, C<sub>1-4</sub> alkylhetaryl, C<sub>3-8</sub> cycloalkyl, C<sub>1-4</sub> alkylcycloalkyl, C<sub>1-4</sub> alkyl cyclohetalkyl;
- Y is H, halogen, CN, CF<sub>3</sub>, nitro, OH, C<sub>1-4</sub> alkyl, ~~C<sub>1-4</sub> alkylNR<sup>5</sup>R<sup>6</sup>~~ C<sub>1-4</sub> alkylNR<sup>5</sup>R<sup>6</sup>, C<sub>1-4</sub> alkylhetaryl, OC<sub>1-4</sub> alkyl, OC<sub>2-4</sub> alkylOC<sub>1-4</sub>alkyl, ~~OC<sub>1-4</sub> alkylNR<sup>5</sup>R<sup>6</sup>~~ OC<sub>1-4</sub> alkylNR<sup>5</sup>R<sup>6</sup>,

OC<sub>1-4</sub> alkylhetaryl, OC<sub>1-4</sub> alkylcyclohetaryl, SC<sub>1-4</sub> alkyl, SC<sub>2-4</sub> alkylOC<sub>1-4</sub>alkyl, ~~SC<sub>1-4</sub> alkylNR<sup>5</sup>R<sup>6</sup>, NR<sup>5</sup>R<sup>6</sup>, NR<sup>5</sup>COR<sup>6</sup>, NR<sup>5</sup>SO<sub>2</sub>R<sup>6</sup>; and R<sup>5</sup> and R<sup>6</sup>~~ SC<sub>1-4</sub> alkylNR<sup>5</sup>R<sup>6</sup>, NR<sup>5</sup>R<sup>6</sup>, NR<sup>5</sup>COR<sup>6</sup>, NR<sup>5</sup>SO<sub>2</sub>R<sup>6</sup>; and R<sup>5</sup> and R<sup>6</sup> are each independently H, C<sub>1-4</sub> alkyl, or may be joined to form an optionally substituted 3-6 membered ring optionally containing an atom selected from O, S, ~~NR<sup>7</sup> and R<sup>7</sup>~~ NR<sup>7</sup> and R<sup>7</sup> is selected from H, C<sub>1-4</sub> alkyl, aryl, hetaryl, C<sub>1-4</sub> alkylaryl, C<sub>1-4</sub> alkylhetaryl;

Z is selected from:



~~where R<sup>8</sup> is selected from H, C<sub>1-4</sub> alkyl;~~ where R<sup>8</sup> is selected from H, C<sub>1-4</sub> alkyl;

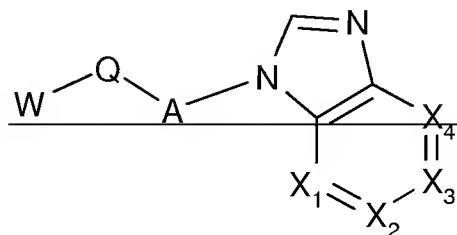
~~R<sup>9</sup> and R<sup>10</sup> are independently selected from H, C<sub>1-4</sub> alkyl, C<sub>1-4</sub> alkylNR<sup>12</sup>R<sup>13</sup>, C<sub>1-4</sub> alkylOR<sup>12</sup>, C<sub>1-4</sub> alkylNR<sup>12</sup>R<sup>13</sup>, C<sub>1-4</sub> alkylOR<sup>12</sup>, C<sub>1-4</sub> alkylhetaryl or may be joined to form a 5-8 membered ring containing an atom selected from SO, or SO<sub>2</sub>;~~ R<sup>9</sup> and R<sup>10</sup> are independently selected from H, C<sub>1-4</sub> alkyl, C<sub>1-4</sub> alkylNR<sup>12</sup>R<sup>13</sup>, C<sub>1-4</sub> alkylOR<sup>12</sup>, C<sub>1-4</sub> alkylhetaryl or may be joined to form a 5-8 membered ring containing an atom selected from SO, or SO<sub>2</sub>;

~~R<sup>11</sup> is selected from OH, OC<sub>1-4</sub> alkyl, NR<sup>12</sup>R<sup>13</sup> NR<sup>12</sup>R<sup>13</sup>;~~ R<sup>11</sup> is selected from OH, OC<sub>1-4</sub> alkyl, NR<sup>12</sup>R<sup>13</sup> NR<sup>12</sup>R<sup>13</sup>;

n is 0-4;

~~where R<sup>12</sup> and R<sup>13</sup> are independently selected from H, C<sub>1-4</sub> alkyl, or may be joined to form an optionally substituted 3-8 membered ring optionally containing an atom selected from O, S, NR<sup>14</sup>; and R<sup>14</sup> is selected from H, C<sub>1-4</sub> alkyl.~~ where R<sup>12</sup> and R<sup>13</sup> are independently selected from H, C<sub>1-4</sub> alkyl, or may be joined to form an optionally substituted 3-8 membered ring optionally containing an atom selected from O, S, NR<sup>14</sup>; and R<sup>14</sup> is selected from H, C<sub>1-4</sub> alkyl.

2. (currently amended): A compound according to claim 1 wherein ~~the compound of formula I is a compound of formula II:~~

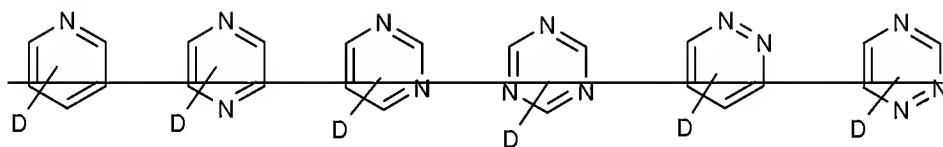


H

or pharmaceutically acceptable prodrugs, salts, hydrates, solvates, crystal forms or diastereomers thereof, wherein:

~~X<sub>1</sub>, X<sub>2</sub>, X<sub>3</sub>, X<sub>4</sub> are each carbon where one is substituted with Z and the rest independently with Y; or one of X<sub>1</sub>, X<sub>2</sub>, X<sub>3</sub>, X<sub>4</sub> is N, and the others are carbon where one carbon is substituted with Z and the rest independently with Y;~~

~~A is a ring selected from:~~



~~where D is selected from H, C<sub>1-4</sub>-alkyl, halogen, amino;~~

~~Q is a bond, halogen, C<sub>1-4</sub>-alkyl, O, S, SO, SO<sub>2</sub>, CO, CS;~~

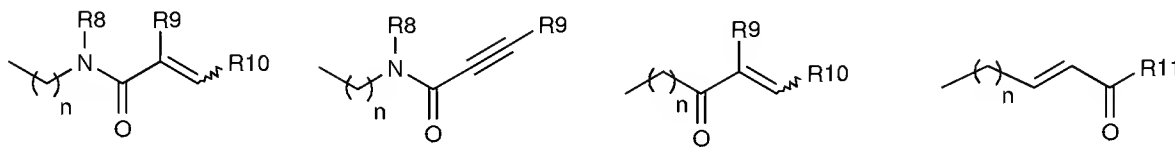
~~W is:~~

~~(i) —NR<sub>1</sub>R<sub>2</sub> where R<sub>1</sub> and R<sub>2</sub> are independently H, C<sub>1-4</sub>-alkyl, C<sub>1-4</sub>-alkylCF<sub>3</sub>, aryl, hetaryl, C<sub>1-4</sub>-alkylaryl, C<sub>1-4</sub>-alkylhetaryl, C<sub>3-8</sub>-cycloalkyl, C<sub>2-6</sub>-alkenyl, cyclohetalkyl, C<sub>1-4</sub>-alkylecycloalkyl, C<sub>1-4</sub>-alkyl cyclohetalkyl, or R<sub>1</sub> and R<sub>2</sub> are joined to form an optionally substituted 3-8 membered ring optionally containing an atom selected from O, S, NR<sub>3</sub>; and R<sub>3</sub> is selected from H, C<sub>1-4</sub>-alkyl, aryl, hetaryl, C<sub>1-4</sub>-alkyl aryl, C<sub>1-4</sub>-alkyl hetaryl, COR<sub>4</sub> where R<sub>4</sub> is selected from H, C<sub>1-4</sub>-alkyl, aryl, hetaryl; or~~

~~(ii) —W is H, C<sub>1-4</sub>-alkyl, aryl, hetaryl, C<sub>3-8</sub>-cycloalkyl, cyclohetalkyl, C<sub>1-4</sub>-alkylaryl, C<sub>1-4</sub>-alkylhetaryl, C<sub>3-8</sub>-cycloalkyl, C<sub>1-4</sub>-alkylecycloalkyl, C<sub>1-4</sub>-alkyl cyclohetalkyl;~~

~~Y is H, halogen, CN, CF<sub>3</sub>, nitro, OH, C<sub>1-4</sub>-alkyl, C<sub>1-4</sub>-alkylNR<sub>5</sub>R<sub>6</sub>, C<sub>1-4</sub>-alkylhetaryl, OC<sub>1-4</sub>-alkyl, OC<sub>2-4</sub>-alkylOC<sub>1-4</sub>-alkyl, OC<sub>1-4</sub>-alkylNR<sub>5</sub>R<sub>6</sub>, OC<sub>1-4</sub>-alkylhetaryl, OC<sub>1-4</sub>-alkylcyclohetalkyl, SC<sub>1-4</sub>-alkyl, SC<sub>2-4</sub>-alkylOC<sub>1-4</sub>-alkyl, SC<sub>1-4</sub>-alkylNR<sub>5</sub>R<sub>6</sub>, NR<sub>5</sub>R<sub>6</sub>, NR<sub>5</sub>COR<sub>6</sub>, NR<sub>5</sub>SO<sub>2</sub>R<sub>6</sub>; and R<sub>5</sub> and R<sub>6</sub> are each independently H, C<sub>1-4</sub>-alkyl, or may be joined to form an optionally substituted 3-6 membered ring optionally containing an atom selected from O, S, NR<sub>7</sub> and R<sub>7</sub> is selected from H, C<sub>1-4</sub>-alkyl, aryl, hetaryl, C<sub>1-4</sub>-alkylaryl, C<sub>1-4</sub>-alkylhetaryl;~~

Z is selected from:



wherein R<sup>8</sup>, R<sup>9</sup>, R<sup>10</sup> and R<sup>11</sup> and n are as defined in claim 1

~~where R<sub>8</sub> is selected from H, C<sub>1-4</sub>-alkyl;~~

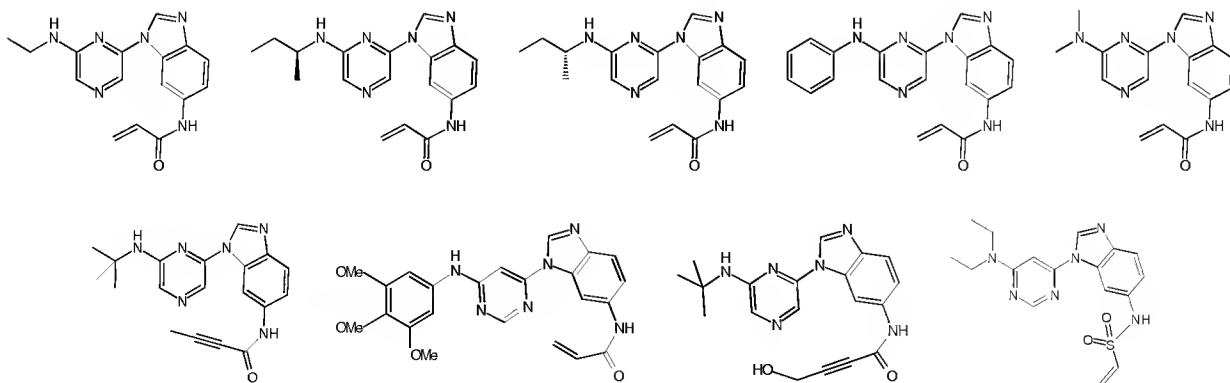
~~R<sub>9</sub> and R<sub>10</sub> are independently selected from H, C<sub>1-4</sub>-alkyl, C<sub>1-4</sub>-alkylNR<sub>12</sub>R<sub>13</sub>, C<sub>1-4</sub>-alkylOR<sub>12</sub>, C<sub>1-4</sub>-alkylhetaryl or may be joined to form a 5-8 membered ring containing an atom selected from SO, or SO<sub>2</sub>;~~

~~R<sub>11</sub> is selected from OH, OC<sub>1-4</sub>-alkyl, NR<sub>12</sub>R<sub>13</sub>;~~

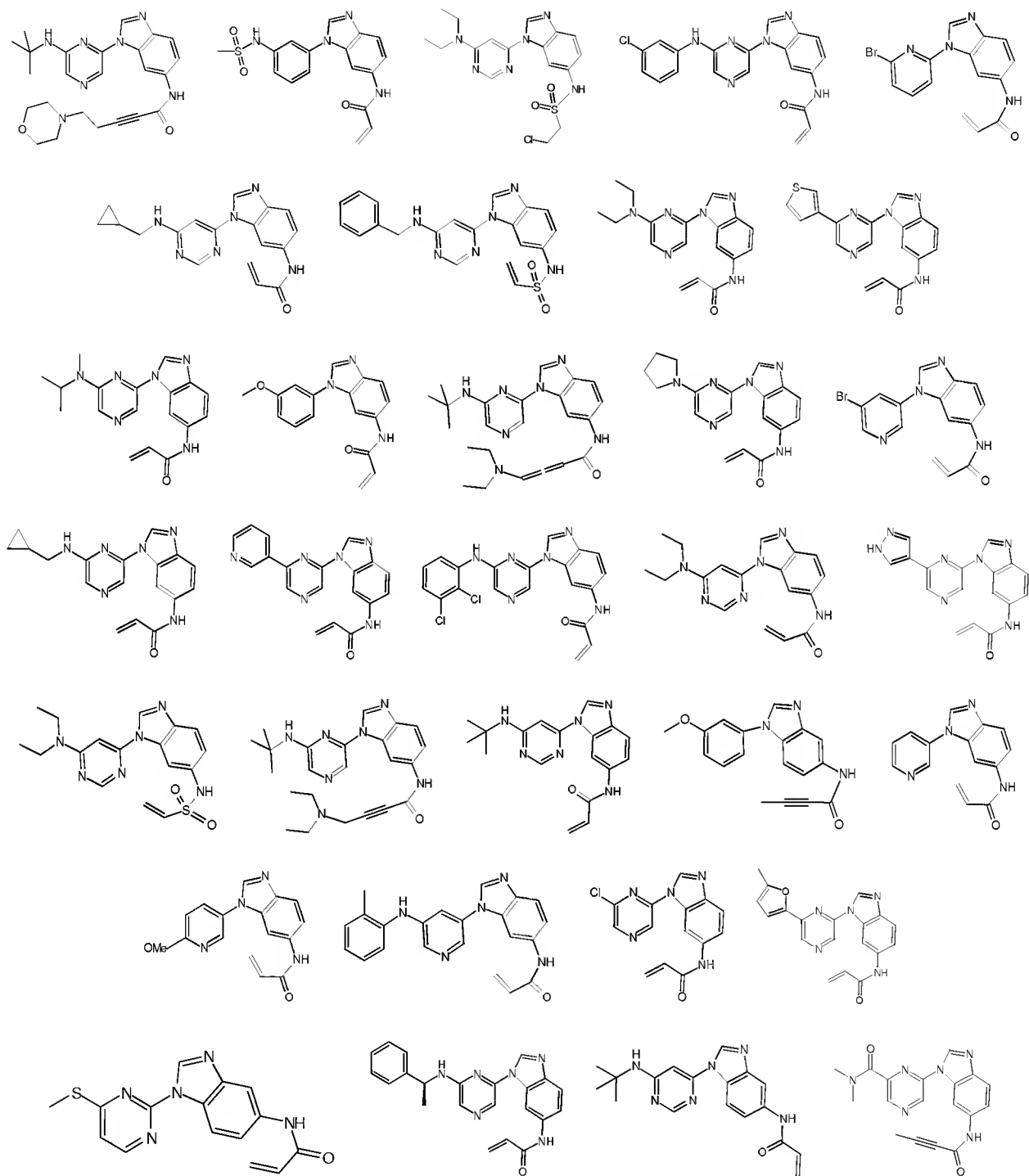
~~n is 0-4;~~

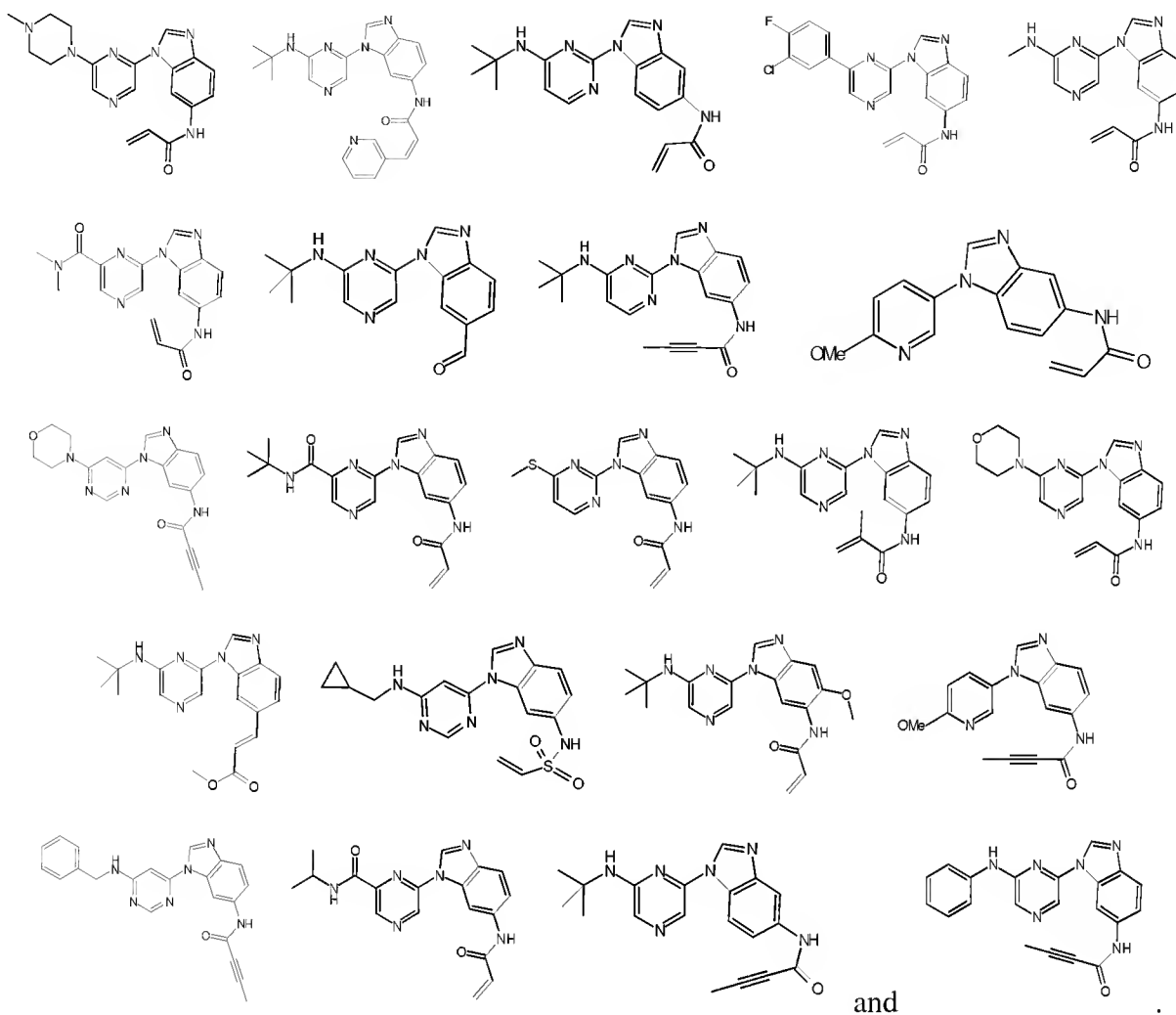
~~where: R<sub>12</sub> and R<sub>13</sub> are independently selected from H, C<sub>1-4</sub>-alkyl, or may be joined to form an optionally substituted 3-8 membered ring optionally containing an atom selected from O, S, NR<sub>14</sub>; and R<sub>14</sub> is selected from H, C<sub>1-4</sub>-alkyl.~~

3. (previously presented): A compound selected from the group consisting of:









4. (previously presented): A compound according to claim 1, wherein the compound irreversibly inhibits JAK-3.

5. (previously presented): A compound according to claim 1, wherein the compound selectively inhibits JAK 3 with respect to JAK 1 or JAK 2.

6. (previously presented): A composition comprising a carrier and a compound according to claim 1.

7. (withdrawn): A method of treating a tyrosine kinase-associated disease state, the method comprising administering a therapeutically effective amount of a compound according to claim 1 or a pharmaceutical composition thereof.

8. (canceled)

9. (withdrawn): A method of suppressing the immune system of a subject, the method comprising administering a therapeutically effective amount of a compound according to claim 1 or a pharmaceutical composition thereof.

10. (original): A selective JAK 3 inhibitor comprising a functionality wherein the functionality is positioned to selectively interact with the Cysteine residue close to the front lip of the ATP-binding cavity of JAK3 (CYS909) whereby the inhibitor is selective for JAK3 with respect to JAK2 and JAK1.

11. (original): A selective JAK3 inhibitor according to claim 10 wherein the functionality irreversibly binds with the Cysteine residue.

12. (previously presented): A selective JAK3 inhibitor according to claim 10 wherein the functionality is an alkylating group.

13. (previously presented): A selective JAK3 inhibitor according to claim 10, wherein the functionality is a Michael acceptor.